CLAIMS

1. A light-receiving element array, comprising :

a plurality of light-receiving elements arrayed in a straight line, each light-receiving element being a pin-photodiode having a p-type or n-type layer formed by diffusion ; and

a light-shielding film provided on the top surface of the light-receiving element array except at least a part of light-receiving area of each light-receiving element.

2. A light-receiving element array, comprising :

a plurality of light-receiving elements arrayed in a straight line, each light-receiving elements being a pin-photodiode having a p-type or n-type layer formed by diffusion ;

each light-receiving element constitutes a mesa-structure with the light-receiving elements being isolated to each other by isolation trenches ; and

a light-shielding film provided on the top surface of the light-receiving element array except at least a part of light receiving area of each light-receiving element.

3. A light-receiving element array, comprising :

a plurality of light-receiving elements arrayed in a straight line, each light-receiving elements being a pin-photodiode formed by crystal growth ;

each light-receiving element constitutes a mesa-structure with the light-receiving elements being isolated to each other by isolation trenches ; and

a light-shielding film provided on the top surface of

the light-receiving element array except at least a part of light receiving area of each light-receiving element.

4. The light-receiving element array of claim 1, 2 or 3, wherein the pin-photodiode comprises a compound semiconductor material.

5. The light-receiving element array of claim 4, wherein the pin-photodiode is coated by a passivation film.

6. The light-receiving element array of claim 5, wherein the passivation film comprises SiN.

7. The light-receiving element array of claim 6, wherein the light-shielding film comprises a metal film.

8. The light-receiving element array of claim 7, wherein the light-shielding film comprises an Au film, Ti/Au film, or Ti/Pt/Au film.

9. The light-receiving element array of claim 6, wherein the light-shielding film comprises a carbon film.

10. A light-receiving element array, comprising :

a plurality of light-receiving elements arrayed in a straight line, each light-receiving element being a pin-photodiode formed by critical growth ;

wherein each light-receiving element constitutes a mesa and waveguide-structure with the light-receiving elements being isolated to each other by isolation trenches.

11. The light-emitting element array of claim 10, wherein each light-receiving element of the mesa and waveguide-structure is formed on a first conductivity-type of substrate, a first conductivity-type electrode is formed on the bottom surface of the substrate, and a second conductivity-type, opposite to the first conductivity-type, of electrode is formed on the top surface of the light-receiving element.

12. The light-emitting element array of claim 11, wherein the light impinges upon the end surface of the pin-photodiode.

13. The light-receiving element array of claim 11 or 12, wherein the first conductivity-type is p-type and the second conductivity-type is n-type.

14. A light-receiving device, comprising :

a light-receiving element array of claim 12 ; and

a circuit board on which the light-receiving element array is mounted, the circuit board including,

a pattern of electrode wirings which are formed in the same pitch as that of the second conductivity-type of electrodes,

a plurality of first leads for the pattern of electrode wirings,

a plurality of first bonding pads connected to the first leads, respectively,

one second bonding pad provided near the light-receiving element array on the circuit board,

a second lead for the second bonding pad, and

a third bonding pad connected to the second lead,

wherein the second conductivity-type of electrodes are connected to the pattern of electrode wirings, and the first conductivity-type of electrode is connected to the second bonding pad.

15. The light-receiving device of claim 14, wherein the first conductivity-type is p-type and the second conductivity-type is n-type.